

WHAT IS CLAIMED:

1. A purified nucleic acid molecule encoding a human KDR protein which consists essentially of the nucleotide sequence
 - 5 ATGGAGAGCAAGGTGCTGCTGGCCGTCGCCCTGTGGCTCTGCGTGGAGACCCGGGCGCCCTCTGTGGGT
TTGCCTAGTGTTTCTCTGTATCTGCCAGGCTCAGCATACAAAAGACATACTTACAATTAAAGGCTAAT
ACAACCTCTTCAAATTACTTGCAGGGGACAGAGGACCTGGACTGGCTTTTGCCCAATAATCAGAGTGGC
AGTGAGCAAAAGGTGGAGGTGACTGAGTGCAGCGATGGCTCTTCTGTAAGACACTCACAATTCCAAAA
GTGATCGGAAATGACACTGGAGCCTACAAGTGTCTCTACCGGAAACTGACTTGGCCTCGGTCAATTTAT
10 GTCTATGTTCAAGATTACAGATCTCCATTATTGTCTGTGTAGTGACCAACATGGAGTGGTGATCAATT
ACTGAGAACAAAAACAACTGTGGTGATTCATGTCTCGGGTCCATTTCAAATCTCAACGTGTCACTT
TGTGCAAGATACCCAGAAAAGAGATTGTCTCTGATGGTAACAGAATTTCCTGGGACAGCAAGAAGGGC
TTTACTATTCCCAGCTACATGATCAGCTATGCTGGCATGGCTCTCTGTGAAGCAAAAATTAATGATGAA
AGTTACCAGTCTATTATGTACATAGTTGTCTGTAGGGTATAGGAATTAATGATGTGGTCTTGAGTCCG
15 TCTCATGGAAATGAACATATCTGTTGGAGAAAAGCTTGCTCTTAAATGTACAGCAAGAATGAACATAAT
TGTCGGGATTGACTCTCAACTGGGAATACCCCTCTCTCAAGCATCAGCATAGAAGAACTTGTAAACCCGAGAC
CTAAAAACCCAGCTCTGGGAGTGAGATGAAGAAATTTTGTAGCACCTTAACTATAGATGGTGTAAACCGAC
AGTGACCAAGGATTGTACACCTGTGCAGCATCCAGTGGGTGATGACCAAGAAGAACAGCACATTTGTCT
AGGGTCCATGAAAAACCTTTTGTGTCTTTTGGAAAGTGGCATGGAACTCTCTGTGGAAAGCCACGGTGGGG
20 GAGCGTGTCAGAATCCCTGCGAAGTACCTTGGTTACCCACCCCCAGAAATAAAATGGTATAAAAATGGA
ATACCCCTTGAGTCCAATCACACAATTAAAGCGGGGCATGTACTGACGATTATGGAAGTGAGTGAAAGA
GACACAGGAAATTCACACTGTCTATCCTTACCAATCCCAATTTCAAAGGAGAAGCAGAGCCATGTGGTCTCT
CTGGTTGTGTATGTCCACCCAGATTGGTGAGAAATCTCTAATCTCTCTGTGGATTCTCTACCACTAC
GGCACCACTCAAACGCTGACATGTACGGTCTATGCCATTCCTCCCCCGCATCACATCCACTGGTATTGG
25 CAGTTGGAGGAGAGAGTGGCCAAAGAGCCAGCCAAAGCTGTCTCAGTGACAAACCCATACCTTTGTGAA
GAATGGAGAAAGTGTGGAGGACTTCCAGGGAGGAAATAAAATGTAAGTTAAATAAAATCAATTTGTCTCTA
ATTGAAGGAAAAACAAACTGTAAGTACCTTTGTATTACCAAGCGGCAAAATGTCTCAGCTTTGTACAAA
TGTGAAGCGGTCAACAAGTCTGGAGAGGAGAGAGGGTGATCTCCTTCCAGTGACAGCGGGTCTGTAA
ATTACTTTTGAACCTGCATGCAAGCCACCTGAGCAGGAGAGCGTGTCTTTGTGTGCTGCACTGCAGACAGA
30 TCTACGTTTGAAGACCTCACATGGTACAAGCTTGGCCACAGCCTCTGCAATCTCATGTGGGAGAGTTG
CCCACACCTGTTTGAAGAACTTGGATATCTTTTGGAAATGAAATGCCACCATGTTCTCTAATAGCACA
AATGACATTTTGATCATGGAGCTTAAGAATGATCCCTTGCAGGACCAAGGAGACTATGTCTGTCTGTCT
CAAGACAGGAAGACCAAGAAAAAGACATTGCGTGGTCAAGCAGCTCAGTCTTAGAGCGTGTGGCACCC
ACGTACACAGAAACCTGGAGAATCAGACGACAAGTATTGGGGAAGACATCGAAGTCTCATGCAAGGCA
35 TCTGGGAATCCCCCTCCACAGATCATGTGGTTTAAAGATAATGAGACCCCTGTAGAGACTCAGGCAAT
GTATTGAAGGATGGGAACCGGAACCTCACTATCCGACAGTGAAGGAGGAGCAAGGCCCTTACACC

- 5 TGCCAGGCATGCGATGTTCTTGGCTGTGCAAAAGTGGAGGCATTTTTCATAATAGAAGGTGCCCAGGAA
 AAGACGAACTTGGAAATCATTATTTCTAGTAGGCACGGCGGTGATTGCCATGTTCTTCTGGCTACTTCTT
 GTCATCATCTTACGGACCGTTAAGCGGGCCAATGGAGGGGAACGAAGACAGGCTACTTGTCCATCGTC
 ATGGATCCAGATGAACCTCCATTGGATGAACATTGTGAACGACTGCCTTATGATGCCAGCAAAATGGGAA
 10 TTCCCCAGAGACCGGCTGAAGCTAGGTAAAGCCTCTTGGCCGTTGGTGCCTTTGGCCAAAGTGATTGAAGCA
 GATGCTTTTGGAAATGACAAGACAGCAACTTGCAGGACAGTAGCAGTCAAAATGTTGAAAGAAGGAGCA
 ACACACAGTGAGCATCGAGCTCTCATGTCTGAACCTCAAGATCCTCATTATTTGGTCACCATCTCAAT
 GTGGTCAACCTTCTAGGTGCCCTGTACCAAGCCAGGAGGGCCACTCATGGTGATTGTGGAATTTCTGCAA
 TTTGGAAACCTGTCCACTTACCTGAGGAGCAAGAGAAATGAATTTGTCCCCTACAAGACAAAGGGGCA
 15 CGATTCCGTCAGGGAAAGACTACGTTGGAGCAATCCCTGTGGATCTGAAACGGCGCTTGGACAGCATC
 ACCAGTAGCCAGAGCTCAGCCAGCTCTGGATTTGTGGAGGAGAAGTCCCTCAGTGATGTAGAAGAAGAG
 GAAGCTCCTGAAGATCTGTATAAGGACTTCTGACCTTGGAGCATCTCATCTGTACAGCTTCCAAGTG
 GCTAAGGGCATGGAGTTCTTGGCATCGCGAAAGTGATCCACAGGGACCTGGCGGCACGAAATATCCTC
 TTATCGGAGAAGAAGCTGGTTAAATCTGTGACTTTGGCTTGGCCCGGATATTTATAAAGATCCAGAT
 20 TATGTGCAAAAAGGAGATGCTCGCTCCCTTTGAAATGGATGGCCCCAGAAACAATTTTGTACAGAGTG
 TACACAATCCAGATGACGCTCTGGTCTTTTGGTGTMTTGTGCTGGGAAATATTTTCCCTAGGTGCTTCT
 CCATATCCTGGGGTAAAGATTGATGAAGAATTTTGTAGGCGATTGAAAGAAGGAACTAGAATGAGGGCC
 CCTGATTATACACACCAGAAATGTACCAGACCATGCTGGACTGCTGGCACGGGGAGCCCACTCAGAGA
 CCCACGTTTTTCAGAGTTGGTGGAAACATTTGGGAAATCTCTTGCAGCTAATGCTCAGCAGGATGGCAAA
 25 GACTACATGTTCTTCCGATATCAGAGACTTTGAGCATGGGAAGGAGATTCTGGACTCTCTGCTTACC
 TCACCTGTTTCTGTATGGAGGAGGAGGAAGTATGTGACCCCAAAATCCATTATGACAAACACAGCAGGA
 ATCAGTCAGTATCTGCAGAACAGTAAGCGAAAGAGCCGCTGTGAGTGATAAAACATTTGAAGATATC
 CCGTTAGAAGAACAGAAAGTAAAGTAATCCAGATGACAACAGACGGGACAGTGATGGTTCTTGCC
 TCAGAAGAGCTGAAACCTTTGGAAGACAGAACCAAAATATCTCCATCTTTTGGTGGAAATGGTGGCCAGC
 30 AAAAGCAGGGAGTCTGTGGCATCTGAAGGCTCAAACAGACAACGGCTACCAAGTCCGGATATCACTCC
 GATGACACAGACACCACCGTGTACTCCAGTGAGGAAGCAGAACTTTTAAAGCTGATAGAGATTGGAGTG
 CAAACCGGTAGCACAGCCAGATTTCTCCAGCTGACTCGGGGACCACATGAGCTCTCTCTCTGTTTAA
 (SEQ ID NO:1), wherein said nucleic acid molecule encodes a human
 KDR protein or biologically active form thereof where at least amino acid
 35 residues selected from the group consisting of Val at position 848, Glu at
 position 498, Ala at position 772, Arg at position 787, Lys at position 835
 and Ser at position 1347 are present in said protein.

2. A purified DNA molecule encoding human KDR
 35 wherein said DNA molecule encodes a protein consisting essentially of
 the amino acid sequence:

MESKVLALVALWLCVETRAASVGLPSVSLDLPRLSIQKDIILTIKANITTLQITCRGQRDLWLWPNNQSG
 SEQRVEVTECSDDLFCCKTLTI PKVIGNDTGAYKCFYRETDLASVIYVYQDYRSFFIASVSDQHGVVYI
 TENKNKTVPVPCLGSSISNLNVSLCARYPEKRFVPDGNRISWDSKKGFTIPSYMISYAGMVFCEAKINDE
 SYQSIMYIVVVVGYRIYDVLVSPSHGIELSVGEKLVNCTARTELVNGIDFNWEYPPSSKHQHKLVNRD
 5 LKTQSGSEMCKFLSTLTIDGVTRSDQGLYTCAASSGLMTKKNSTFVRVHEKFPVAFPGSGMESLVEATVG
 ERVRIPAKYLGYPPEIKWYKNGIPLESNHTIKAGHVLTIMEVSEKRDGTNYTVILTNPISKEKQSHVVS
 LVVYVPPQIGEKSLISPVDSYQYGTQTTLTCTVYAI PPPHHIHWYQLEEECANEPSQAVSVTNYPYCE
 EWSRVEDFQGGNKIEVKNQFALIEGKNKTVSTLVIQAANVSALYKCEAVNVKVGGERVISPHVTRGPE
 ITLQPDMPQTEQESVSLWCTADRSTFENLTWYKLGQPLPIHVGLPTPVCKNLDLWKLNATMFSNST
 10 NDILIMELKNASLDQGDYVCLAQDRKTKRHCVVRQLTVLERVAPTITGNLENQTTSIGESIEVSCTA
 SGNPPQIMWFKDNETLVEDSGIVLKDGNRNLTIRRVKDEDEGLYTCQACSVLGCACVEAFFIIEGAQE
 KTNLEII ILVGTAVIAMFFWLLVILRTVVRANGGELKTYGLSIVMDPDELPLDEHCEKRLPYDASKWE
 FPRDLKLGKPLGRGAFGQVIEADAFGIDKTATCRTVAVKMLKEGATHSEHRALMSELKILIHIGHHLN
 VVNLGACTKPGGPLMVIIVEFCKFNLSTYLRSKRNEFVYPYTKGARFRQCKDYVGAIPVDLKRRLDSI
 15 TSSQSSASSGFVEEKSLSDVVEEEAPEDLYKDFLTLEHLICYSFQVAKGMEFLASRKC IHRDLAARNIL
 LSEKNVVKICDFGLARDIYKDPDYVRKGDARLPLKWMAPETIPDRVYTIQSDVWSFGVLLWEIFSLGAS
 PYPGVKIDEEFCRRLKEGTRMRAPDYTTPEMYQTMCLDCWHCEPSQRPTFSELVEHLGNLLQANAQQDGK
 DYIVLPISETLSMEEDSGLSLPTSPVSCMEEEVECDPKFHYDNTAGISQYLQNSKRKSRPVSVKTFEDI
 PLEEPEVKVIPDDNQDTSGMVLASEELKTLEDRTKLSPSFGMVPSKSRESVASEGSNQTSQYQSGYHS
 20 DDTDTTYSSEEAECLKLIEIGVQTGSTAQILQPDSGTTLSSPPV, as set forth in a three-
 letter abbreviation in SEQ ID NO:2 and containing amino acid residues
 selected from the group consisting of Val at position 848, Glu at position
 498, Ala at position 772, Arg at position 787, Lys at position 835 and Ser at
 position 1347.

25

3. An expression vector for the expression of a human KDR protein in a recombinant host cell wherein said expression vector comprises the DNA molecule of claim 1.

30

4. An expression vector of claim 3 which is a eukaryotic expression vector.

5. An expression vector of claim 3 which is a prokaryotic expression vector.

35

6. A host cell which expresses a recombinant human KDR protein wherein said host cell contains the expression vector of claim 3.

7. A host cell which expresses a recombinant human KDR protein wherein said host cell contains the expression vector of claim 4.

8. A host cell which expresses a recombinant human KDR protein wherein said host cell contains the expression vector of claim 5.

9. A host cell of claim 6 wherein said human KDR protein is overexpressed from said expression vector.

10. A host cell of claim 7 wherein said human KDR protein is overexpressed from said expression vector.

11. A host cell of claim 8 wherein said human KDR protein is overexpressed from said expression vector.

12. A subcellular membrane fraction obtained from the host cell of claim 9 which contains recombinant human KDR protein.

13. A subcellular membrane fraction obtained from the host cell of claim 10 which contains recombinant human KDR protein.

14. A subcellular membrane fraction obtained from the host cell of claim 11 which contains recombinant human KDR protein.

15. A purified DNA molecule which consists of the nucleotide sequence:

ATGGAGAGCAAGGTGCTGCTGGCCCTGCCCCCTGGCTCTGCGTGGAGACCCGGGCCCTCTGTGGSTT
TGCCTAGTGTTTCTCTTGATCTGCCCAGGCTCAGCATACAAAAGACATACTTACAATTAAGGCTAATAC
AACTCTTCAAATTACTTGCAGGGGACAGAGGGACTTGGACTTGGCTTTGGCCCAATAATCAGAGTGGCAGT
GAGCAAAGGGTGGAGGTGACTGAGTGACGATGGCCTCTTCTGTAAGACACTCACAATTCCAAAAGTGA

TCGGAAATGACACTGGAGCCTACAAGTGCTTCTACCGGAAACTGACTGGGCTCGGTCACTTTATGTCTA
 TGTTC AAGATTACAGATCTCCATTTATGTCTTGTGTAGTGACCAACATGGAGTCGTGTACATTACTGAG
 AACAAAAACAAACTGTGGTGATTCCATGTCTCGGGTCCATTTCAAATCTCAACGTGTCACTTTGTGCAA
 GATACCCAGAAAAGAGATTTGTTCCTGATGGTAACAGAATTTCTCGGACAGCAAGAAGGGCTTTACTAT
 5 TCCAGCTACATGATCAGCTATGCTGGCATGGTCTTCTGTGAAGCAAAAATTAATGATGAAAGTTACCAG
 TCTATTATGTACATAGTTGTGCTTGTAGGGTATAGGATTTATGATGTGGTTCGTAGTCCGCTCATGGAA
 TTGAACATATCTGTGGAGAAAAGCTTGTCTTAAATTGTACAGCAAGAACTGAACATAAATGTGGGGATTGA
 CTTCACCTGGGAATACCTTCTTCGAAGCATCAGCATAGAAGAACTTGTAAACCGAGACCTAAAAACCCAG
 TCTGGAGTGAGATGAAGAAATTTTGTAGCACCTTAACATATAGATGGTGTAACCCGGAGTGACCAAGGAT
 10 TGTACACCTCTGCAGCATCCAGTGGGCTGATGACCAAGAAGAACAGCACATTTGTGAGGCTCCATGAGAAA
 ACCTTTTGTGTCTTTTGGAAAGTGGCATGGAATCTCTGGTGAAGGCCAGGTGGGGAGCGGTGTCAGAATC
 CCTGCGAAGTACCTTGGTTACCCACCCCCAGAAATAAAATGGTATAAAAATGGAATACCCCTTGTAGTCCA
 ATCACACAATTAAAGCGGGGCGATGTACTGACGATTTATGGAAGTGAGTGAAAGAGACACAGGAAATTACAC
 TGTCACTCTTACCAATCCCATTTCAAAGGAGAAGCAGAGCCATGTGGTCTCTCTGGTGTGTATATGCCA
 15 CCCCAGATTGGTGAGAAATCTCTAATCTCTCTCTGGATTCTCTACCAAGTACGGCACCACTCAAACGCTGA
 CATGTACGGTCTATGCCATTCTCTCCCCGATCACAATCCACTGGTATTGGCAGTTGGAGGAAGAGTGCAG
 CAACGAGCCCCAGCCAGCTGTCTCAGTGACAACCCATACCTTTGTGAAGAAATGTGAGAAATGTGGAGAGC
 TTCCAGGGAGGAAATAAAATTGAAGTTAATAAAAATCAATTTGTCTCAATTGAAGGAAAAACAAAATG
 TAAGTACCTTTGTATCCAAGCGGCAAAATGTGTGAGCTTTGTACAAATGTGAAGCGGTCAACAAGTCGG
 20 GAGAGGAGAGAGGGGTATCTCTTCCACGTGACAGGGGTCTCGAAATTACTTTGCCAACCTGACATGACAG
 CCCACTGAGCAGGAGAGCGGTGTCTTTGTGGTGCACTGCAGACAGATCTACGTTGTGAGAACCTCACAATGGT
 ACAAGCTTGGCCCCACAGCCTCTGCCAATCCTATGTGGGAGAGTTGCCACACCTGTTTGCAGAAGCTTGGG
 TACTCTTTGGAATTTGAATGCCACCATTCTCTCTAATAGACAAATGACATTTGTGATGGAGCTTAAG
 AATGATCTCTTGCAGGCAAGAGGAGACTATGTCTGCTGCTTGTCTGACAGGAGAGCAAGAAAGACATTT
 25 GCGTGGTCAGGACGCTCACAGTCTTAGAGCGTGTGGCACCCACGATCACAGGAAACCTGGAGAATCAGAC
 GACAAGTATTGGGGAAGCATCGAAGTCTCATGCACGGCATCTGGGAATCCCCCTCCACAGATCATGTGG
 TTTAAGATAAATGAGACCTTTGTAGAAGACTCAGGCATTGTATTGAAGGATGGGAACCGGAACCTCACTA
 TCCGAGAGTGAAGGAGGAGGAGCGAGCCCTACACCTGCCAGGCATGCAGTGTCTTGTGGCTGTGCAAAA
 AGTGAGGACATTTTTCATAATAGAAGGTGCCAGAAAAGACGAACCTTGAATAATCATTTATTCTAGTAGGC
 30 ACGGCGGTGATTGCCATGTCTTCTTGGCTACTTCTTGTCTCATCTTACGGACCGTTAAGCGGGCAATG
 GAGGGGAACCTGAAGACAGGCTACTTGTCTCATCGTCATGGATCCAGATGAACATCCCATGGATGAACATTG
 TGAACGACTGCCCTTATGATGCCAGCAATGGGAATTTCCCCAGAGACCGGCTGAAGCTAGGTAAGCCTCTT
 GGCCGTGGTGCCCTTTGGCCAAAGTGATTGAAGCAGATGCCCTTTGGAATTGACAAGACAGCAACTTGCAGGA
 CAGTAGCAGTCAAAATGTTGAAAAGAGGAGCAACACACAGTGAAGCATCGAGCTCTCATGTCTGAACTCAA
 35 GATCTCATTCATATTGGTCACCATCTCAATGTGGTCAACCTTCTAGTGGCTGTGTAACAGCCAGGAGGG
 CCACATCATGTGATTGTGGAATTTCTGCAAAATTGGAACCTGTCCACTTACCTGAGGAGCAAGAGAAATG

AATTTGTCCTTCAAGACCAAAGGGCACGATTCCGTCAAGGAAAGACTACGTTGGAGCAATCCCTGT
 GGATCTGAAACGGCGCTTGGACAGCATCACCAGTAGCCAGACTCAGCCAGCTCTGGATTGTGGAGGAG
 AAGTCCCTCAGTGATGTAGAAGAAGAGGAAGCTCCTGAAGATCTGTATAAGGACTTCTGACCTTGGAGC
 ATCTCATCTGTTACAGCTTCCAAGTGGCTAAGGGCATGGAGTCTCTGGCATCGCGAAAGTGTATCCACAG
 5 GGACCTGGCGGCACGAAATATCTCTTATCGGAGAAGAAGCTGGTTAAAAATCTGTGACTTTGGCTTGGCC
 CGGGATATTATATAAGATCCAGATTATGTGAGAAAAGAGATGCTCGCCTCCCTTTGAAATGGATGGCC
 CAGAAACAATTTTTCACAGAGTGTACACAATCCAGAGTAGCTCTGGTCTTTTGGTGTTTTGTCTGTGGGA
 AATATTTTCTTAGTGCTTCTCCATATCTCGGGTAAAGATTGTAGAAATTTTGTAGGCGATTGAAA
 GAAGGAATAGAATGAGGGCCCCCTGATTATACTACACCAGAAATGTACCAGACCATGCTGGACTGCTGGC
 10 ACGGGAGCCGATCAGAGACCCACGTTTTCAGAGTTGGTGGAAATTTGGGAAATCTCTTGCAAGCTAA
 TGCTCAGCAGGATGGCAAGACTACATTGTTCTTCCGATATCAGAGACTTGGAGCATGGAAGAGGATTCT
 GGACTCTCTGCGCTACCTACCTGTTTCTCTGTATGGAGGAGGAGGAAGTATGTACCCCAAAATCCATT
 ATGACAAACAGCAGGAATCAGTCAGTATCTGCAGAACAGTAAGCGAAAGAGCCGCGCTGTAGTGTAA
 AACATTTGAAGATATCCGCTTGAAGAACCAGAAGTAACTCCAGATGACAACACGAGCAGCAGT
 15 GGTATGGTTCTTGCTCAGAAGAGCTGAAAACCTTGAAGACAGAACCAATTTATCTCCATCTTTTGGTG
 GAATGCTGCCAGCAAAAGCAGGAGTCTGTGGCATCTGAAGGCTCAAACAGACAAGCGGCTACCAGTC
 CGGATATCACTCCGATGACACAGACACCACCGTGTACTCCAGTAGGAAGCAGAACTTTTAAAGCTGATA
 GAGATTGGAGTCAAACCGGTAGCACAGCCAGATTCCTCCAGCTGACTCGGGGACACACTGAGCTCTC
 CTCTGTTTAA, disclosed as SEQ ID NO:1.

20

16. A purified human KDR protein which consists of the amino acid sequence

MESKVLAVLWLCVETRAASVGLPSVSLDLPRLSIQKIDILTIKANTTLQITCRGQRLDWLPNNQSG
 SEQRVEVTECSDGLFCKTLTIKVI GNDTGAYKCFYRETDLA SVIYVQDYRSPFIASVSDQHVVYI
 25 TENKNTVVIPLGSI SNLNSLCARYPEKRFVPDGNRISWDSKKGFTIPSYMISYAGMVFC EAKINDE
 SYQSIMYIVVVYGRYIDVLSPSHGIELSVGEKLVLNCTARTELVNVDGIDFNEWYESSKHQHKLVNRD
 LKTQSGSEMKKFLSTLTIDGVTRSDQGLYTCAASSGLMTKKNSTFVRVHEKPPVAFGSGMESLVEATV
 ERVRIKAYLGYPPPEIKWYKNGI PLESNHTIKAGHVLTIMEVSEDRDTGNVTI LTNPISEKQSHVVS
 LVVVYPPQIGEKSLISPDVSYQYGTQTTLCTVYAI PPPHHIHWYQLEECANEPSQAVSVTNPYPCE
 30 EWRSVEDFQGGNKIEVNKNQFALIEGKNKTVSTLVIQAANVSALYKEAVNKVGRGERVISFHVTRGPE
 ITLQPMQPTQESVSLWCTADRSTFENLTWYKLGPPLP IHVGE LPTPVCKNLDTLWKLNAITMFSNST
 NDILIMELKNASLDQDGYVCLAQDRKTKRRCVVRQLTVLERVAPTITGNLENQTTSIGESIEVSCTA
 SGNPPPIQIMWFKDNETLVEDSGIVLKDGNRNLTI RVRKDEGLYTCQACSVLGCAKVEAFFIIEGAQE
 RTNLEIIILVGTAVIAMFFWLLV IILRTVVRANGSELKTYLSIVMDPELPLDEHCERLPYDASKWE
 35 PPRDLRLKGLKGRGAFGQVIEADAFGIDKATATCRTVAVKMLKEGATSEHRALMSELKILIHIGHHLN
 VVNLGACTKPGGLMVIVEFCKFGNLSTYLSRKRNEFVPYKTKGARFRQKDYVGAIPVDLKRRLDSI

TSSQSSASSGFVEEKSLSLDVEEEAAPEDLYKDFLTLEHLICYSFQVAKGMEFLASRKC IHRDLAARNIL
 LSEKNVVVKICDFGLARDIYKDPDYVRKGDARLPLKWMAPETIFDRVYTIQSDVWSFGVLLWEIFSLGAS
 PYPGVKIDEEFCRRLKEGTRMAPDYTTPEMYQTMDCWHGEPSSQRPTFSSELVEHLGNLLQANAQQDGK
 DYIVLP ISETLSMEEDSGLSLPTSPVSCMEEEVCDPKPHYDNTAGISQYLQNSKRKSRPVSVKTFEDI
 5 PLEPEVKVIPDDNQTDSCGMVLASEELKTLEDRTKLSPSFGGMVPSKSRRESVASEGSNQTSQYQSGYHS
 DDTDTTVYSSEEAELLKLIIEIGVQTGSTAQILQFDSGTTLSPPV, as set forth in three

letter abbreviation in SEQ ID NO:2 and containing amino acid residues
 selected from the group consisting of Val at position 848, Glu at position
 498, Ala at position 772, Arg at position 787, Lys at position 835 and Ser at
 10 position 1347.

17. The purified human KDR protein of claim 16 as set
 forth in SEQ ID NO:2.

15 18. A process for the expression of a human KDR protein
 in a recombinant host cell, comprising:

(a) transfecting the expression vector of claim 3 into
 a suitable host cell; and,

20 (b) culturing the host cells of step (a) under
 conditions which allow expression of the human KDR protein from the
 expression vector.

25 19. An expression vector for the expression of a human
 KDR protein in a recombinant host cell wherein said expression vector
 comprises the DNA molecule of claim 15.

30 20. A purified nucleic acid molecule encoding an
 intracellular portion of a human KDR protein which comprises from
 about amino acid 790 to about amino acid 1356 as set forth in SEQ ID NO:
 2, wherein position 848 is a valine residue.

35 21. A purified nucleic acid molecule of claim 20 encoding
 an intracellular portion of a human KDR protein which comprises from
 about amino acid 790 to about amino acid 1356 as set forth in SEQ ID NO:

2, wherein position 772 is an alanine residue, position 787 is an arginine residue, position 835 is a lysine residue, position 848 is a valine residue and position 1347 is a serine residue.

5 22. An expression vector for the expression of a human KDR protein in a recombinant host cell wherein said expression vector comprises the DNA molecule of claim 20.

10 23. An expression vector for the expression of a human KDR protein in a recombinant host cell wherein said expression vector comprises the DNA molecule of claim 21.

15 24. A purified protein fragment which is an intracellular portion of a human KDR protein, comprising from about amino acid 790 to about amino acid 1356 as set forth in SEQ ID NO: 2, wherein position 848 is a valine residue.

20 25. A purified protein fragment of claim 24 which comprises from about amino acid 790 to about amino acid 1356 as set forth in SEQ ID NO: 2, wherein position 772 is an alanine residue, position 787 is an arginine residue, position 835 is a lysine residue, position 848 is a valine residue and position 1347 is a serine residue.

25 26. A purified nucleic acid molecule encoding an soluble KDR fusion protein which comprises from about amino acid 790 to about amino acid 1356 of human KDR as set forth in SEQ ID NO: 2, wherein position 848 is a valine residue.

30 27. A purified nucleic acid molecule of claim 26 wherein said KDR fusion protein comprises from about amino acid 790 to about amino acid 1356 as set forth in SEQ ID NO: 2, position 772 being an alanine residue, position 787 being an arginine residue, position 835 being a lysine residue, position 848 being a valine residue and position 1347 being a serine residue.

35

28. A purified nucleic acid molecule of claim 27 which encodes GST-KDR.

29. An expression vector for the expression of a human KDR protein in a recombinant host cell wherein said expression vector comprises the DNA molecule of claim 26.

30. An expression vector for the expression of a human KDR protein in a recombinant host cell wherein said expression vector comprises the DNA molecule of claim 27.

31. An expression vector for the expression of a human KDR protein in a recombinant host cell wherein said expression vector comprises the DNA molecule of claim 28.

32. A purified KDR fusion protein which is characterized by an intracellular portion of a human KDR protein, comprising from about amino acid 790 to about amino acid 1356 as set forth in SEQ ID NO: 2, wherein position 848 is a valine residue.

33. A purified KDR fusion protein of claim 32 which comprises from about amino acid 790 to about amino acid 1356 as set forth in SEQ ID NO: 2, wherein position 772 is an alanine residue, position 787 is an arginine residue, position 835 is a lysine residue, position 848 is a valine residue and position 1347 is a serine residue.

34. The purified KDR fusion protein of claim 33 which is GST-KDR.

35. A purified nucleic acid molecule encoding an extracellular portion of a human KDR protein which comprises from about amino acid 1 to about amino acid 644 as set forth in SEQ ID NO:2, wherein position 498 is a glutamic acid residue.

36. An expression vector for the expression of a human KDR protein in a recombinant host cell wherein said expression vector comprises the DNA molecule of claim 36.

37. A purified protein fragment which is an extracellular portion of a human KDR protein, comprising from about amino acid 1 to about amino acid 790 as set forth in SEQ ID NO: 2, wherein position 498 is a glutamic acid residue, position 772 is an alanine residue and position 787 is an arginine residue.

38. An isolated nucleic acid molecule of claim 20 wherein a termination codon is inserted such that the KDR open reading frame terminates at about Tyr 1175.

39. An isolated nucleic acid of claim 38 which is contained within a DNA vector, pBlueBacHis2B.

40. The DNA vector of claim 39 which is pBBH-KDR-1.

41. A method of selecting a compound which antagonizes human KDR which comprises a biological assay wherein a test compound is added in combination with a KDR protein or protein fragment and a substrate, said substrate being involved in a measurable interaction at a domain of interest within wild-type KDR such that a compound antagonist interacts with said KDR protein, resulting in a measurable decrease in KDR:substrate activity.

42. A method of claim 41 wherein said KDR protein is GST/KDR-1.

43. A method of claim 42 wherein said substrate is pEY.

44. A method of selecting a compound which is an agonist of human KDR which comprises a biological assay wherein a test compound is added in combination with a KDR protein or protein fragment and a substrate, said substrate being involved in a measurable

interaction at a domain of interest within wild-type KDR such that a compound antagonist interacts with said KDR protein, resulting in a measurable increase in KDR:substrate activity.

5 45. A method of claim 44 wherein said KDR protein is GST/KDR-1.

46. A method of claim 45 wherein said substrate is pEY.

10

10022939-121501